WHAT IS CLAIMED IS:

1. A ballast circuit comprising:

a DC input circuit having a high voltage line and a base line;

a lamp drive circuit coupled between the high voltage line and the base line;

an output circuit coupled to the lamp drive circuit for producing a lamp drive current used for driving an electric discharge lamp; and

a ballast protection circuit for protecting the lamp drive circuit, comprising:

a detection circuit coupled between the high voltage line and the base line configured to detect when a voltage on the high voltage line exceeds a threshold, and

a shutoff device coupled to the detection circuit and to the lamp drive circuit for preventing the lamp drive circuit from producing a lamp drive current when the voltage on the high voltage line exceeds the threshold.

2. The ballast circuit of claim 1 wherein the voltage-responsive device is one of a silicon control rectifier, a MOSFET, a bipolar transistor and an opto-isolator.

3. The ballast circuit of claim 1 wherein at least one of the ballast protection circuit and the shutoff device includes a delay circuit.

4. The ballast circuit of claim 3 wherein the delay circuit includes a capacitor coupled to a resistor.

5. The ballast circuit of claim 1 wherein the output circuit includes an inverter comprising first and second field effect transistors in a push-pull configuration including a feedback device for causing the inverter to generate an oscillating lamp drive current.

6. The ballast circuit of claim 5 wherein the shutoff device includes a device having a controllable conduction path coupled to the gate and source of the first effect transistor.

7. The ballast circuit of claim 6 wherein the voltage-responsive device is one of a silicon controlled rectifier, bipolar transistor and a MOSFET.

8. The ballast circuit of claim 5 further including an inverter starter circuit for producing a starting pulse that is applied to the gate of the first transistor for causing the inverter to start producing the oscillating lamp drive current.

9. The ballast circuit of claim 1 wherein the ballast circuit further includes a full wave rectifier coupled to the DC input circuit at the high voltage line and the base line.

10. The ballast circuit of claim 1 wherein the lamp drive circuit includes an inverter circuit.

11. The ballast circuit of claim 10 wherein the inverter circuit includes transistors arranged in a push pull configuration.

12. The ballast circuit of claim 10 wherein the inverter circuit includes a pair of MOSFETs.

13. The ballast circuit of claim 1 wherein the shut-off device includes an SCR.

14. The ballast circuit of claim 13 further comprising a transistor in the lamp drive circuit having a gate and wherein the SCR is coupled to the gate of transistor in the lamp drive circuit.

15. The ballast circuit of claim 1 wherein the detection circuit is configured to detect when a voltage on the high voltage line exceeds a value equal to approximately twice the voltage on the high voltage line under normal operating conditions.

16. The ballast circuit of claim 1 wherein the detection circuit is configured to detect a voltage greater than 200 volts.

17. The ballast circuit of claim 1 wherein the detection circuit is configured to detect a voltage greater than 212 volts.

18. The ballast circuit of claim 1 wherein the detection circuit includes a series of diodes.

19. The ballast circuit of claim 18 wherein a series of diodes are coupled between the high voltage line and a gate of a current conduction device.

20. The ballast circuit of claim 19 wherein the lamp drive circuit includes at least one transistor and wherein the current conduction device is coupled to a gate of the transistor.

21. The ballast circuit of claim 19 further comprising a delay circuit coupled to the gate of the current conduction device.

22. The ballast circuit of claim 19 further comprising a capacitor coupled to the gate of the current conduction device.

A15. The ballast circuit of claim 1 wherein the shut-off device includes a component selected from the group of a silicon control rectifier, a bi-polar transistor, an opto-isolator and a MOSFET.

23. The ballast circuit of claim 1 wherein the lamp drive circuit includes a MOSFET and wherein the shut-off device is coupled to a gate of the MOSFET.

25. A method of protecting a ballast circuit having an inverter from generating a lamp drive current that is excessive, comprising:

sensing an input voltage that varies as a function of an input to the ballast; and

preventing the inverter from generating the lamp drive current if the voltage exceeds a predetermined voltage by preventing a transistor in the inverter from conducting current.

26. The method of claim 25 further including the step of delaying the step of preventing for a predetermined time so that the starting of an electric discharge lamp does not prevent the ballast circuit from generating the lamp drive current.

27. The method of claim 25 wherein the step of preventing the ballast circuit from generating the lamp drive current includes the step of shunting the gate voltage of a lamp drive current generating field effect transistor in order to prevent the operating of the transistor.

28. The method of claim 27 wherein the step of shunting the gate voltage of the field effect transistor includes using one of a silicon controlled rectifier, bipolar transistor, MOSFET and opto-isolator to perform the shunting.

29. A ballast circuit comprising:

an input circuit for receiving current from a current source;

an output circuit for supplying power to an electric discharge lamp; and

a ballast protection circuit between the input and the output circuits for protecting the ballast circuit from providing excessive power at the output circuit, the protection circuit including a voltage sensing circuit for sensing a voltage in the input circuit and a response circuit coupled to the voltage sensing circuit for reducing the power provided by the output circuit when the voltage reaches a given level.

30. A ballast circuit comprising:

an input circuit for receiving power from a power source;

an output circuit for supplying drive current to an electric discharge lamp;

an oscillation circuit between the input and the output for creating an oscillating current for the output circuit to drive the electric discharge lamp; and

a ballast protection circuit coupled to the input circuit for protecting the ballast circuit from excessive drive current being developed in the output circuit, the protection circuit including at least one diode and a trigger circuit coupled to the at least one diode for reducing the drive current in the output circuit when a voltage in the input circuit reaches a given level.

31. The ballast circuit of claim 30 wherein the oscillation circuit includes at least one transistor and wherein the trigger circuit is coupled to a gate of the transistor.

32. The ballast circuit of claim 31 wherein the trigger circuit is coupled between the diode and the gate of the transistor.

33. The ballast circuit of claim 32 wherein the ballast protection circuit includes at least a plurality of diodes coupled to the input circuit.

34. The ballast circuit of claim 32 wherein the trigger circuit includes a current conduction device coupled between the diode and the gate of the transistor.

35. The ballast circuit of claim 34 wherein the trigger circuit includes a delay circuit.

36. The ballast circuit of claim 34 wherein the current conduction device is an SCR.

37. The ballast circuit of claim 36 wherein the oscillation circuit includes a pair of MOSFETs.

38. The ballast circuit of claim 37 wherein the SCR is coupled to a gate of one MOSFET and wherein the at least one diode is a plurality of diodes coupled between the input circuit and a gate of the SCR.

39. A ballast circuit comprising:

a DC input circuit;

a lamp drive circuit coupled the DC input circuit;

an output circuit from the lamp drive circuit for producing a lamp drive current used for driving an electric discharge lamp; and

a ballast protection circuit for protecting the lamp drive circuit, including a detection circuit coupled to the DC input circuit and configured to detect when a voltage from the DC input circuit exceeds a threshold, and

a shutoff device coupled to the detection circuit and to the lamp drive circuit for preventing the lamp drive circuit from producing a lamp drive current.